

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A high-function photocatalyst having its surface partially covered with a polymer having an anionic group, said polymer leaving uncovered photocatalyst surface,

~~wherein the polymer having an anionic group attracts pollutant materials having a positive charge to the photocatalyst surface, and the polymer is selected from the group consisting of poly(fluorine-substituted sulfonic acid), poly(fluorine containing carboxylic acid), polystyrene sulfonic acid, and polyvinyl sulfonic acid, and~~

wherein said partially covered surface is prepared by applying a polymer solution in an amount of 0.05 to ~~5 ml~~ 0.4 ml with a 5% by weight solution to the photocatalyst surface per gram of the photocatalyst,

whereby the polymer having an anionic group attracts pollutant materials having a positive charge so close to said photocatalyst surface as to promote photocatalytic decomposition of the pollutant materials.

2. (Original) The high-function photocatalyst according to claim 1, wherein the photocatalyst is a linear polymer.

3. (Original) The high-function photocatalyst according to claim 1 or 2, wherein the photocatalyst is in a form of a fine powder with particle size of 0.04 to 1 μm .

4. (Cancelled)
5. (Previously Presented) The high-function photocatalyst according to claim 1 or 2, wherein the photocatalyst is spherical.
6. (Previously Presented) The high-function photocatalyst according to claim 1 or 2, wherein the photocatalyst is immobilized on a substrate.
7. (Currently Amended) A method of manufacturing a high-function photocatalyst comprising the steps of adding a spherical photocatalyst into a solution having a linear polymer having an anionic group dissolved in a solvent, stirring, and drying, said polymer leaving partially uncovered photocatalyst surface, wherein the polymer having an anionic group attracts pollutant materials having a positive charge to the photocatalyst surface, and the polymer is selected from the group consisting of poly(fluorine-substituted sulfonic acid), poly(fluorine containing carboxylic acid), polystyrene sulfonic acid, and polyvinyl sulfonic acid, and wherein said partially uncovered photocatalyst surface is prepared by applying a polymer solution in an amount of 0.05 to ~~5 ml~~ 0.4 ml with a 5% by weight solution to the photocatalyst surface per gram of the photocatalyst.
8. (Previously Presented) A method of manufacturing a high-function photocatalyst comprising the steps of immobilizing a photocatalyst on a

substrate of a film, applying to a substrate surface a solution dissolving a polymer having an anionic group in an amount of 0.1 to 1 ml of a 5% by weight solution per substrate surface area of 20 cm², and drying, wherein the polymer having an anionic group attracts pollution materials having a positive charge to a photocatalyst surface, and the polymer is selected from the group consisting of poly(fluorine-substituted sulfonic acid), poly(fluorine containing carboxylic acid), polystyrene sulfonic acid, and polyvinyl sulfonic acid.

9-11. (Cancelled)

12. (Previously Presented) The high-function photocatalyst according to claim 1, wherein the photocatalyst is selected from the group consisting of titanium dioxide, zinc oxide, zirconium oxide and tungsten oxide.

13. (Previously Presented) The method according to claim 7, wherein the photocatalyst is selected from the group consisting of titanium dioxide, zinc oxide, zirconium oxide and tungsten oxide.

14. (Previously Presented) The method according to claim 8, wherein the photocatalyst is selected from the group consisting of titanium dioxide, zinc oxide, zirconium oxide and tungsten oxide.

15. (Currently Amended) A photocatalyst composition, which comprises:

a photocatalyst powder; and

an anionic linear polymer that partially covers a surface of the photocatalyst powder, said polymer leaving uncovered photocatalyst surface, wherein the polymer having an anionic group attracts pollutant materials having a positive charge to the photocatalyst surface, and the polymer is selected from the group consisting of poly(fluorine-substituted sulfonic acid), poly(fluorine containing carboxylic acid), polystyrene sulfonic acid, and polyvinyl sulfonic acid, and wherein said partially covered surface is prepared by applying a polymer solution in an amount of 0.05 to ~~5 ml~~ 0.4 ml with a 5% by weight solution to the photocatalyst surface per gram of the photocatalyst.

16. (Previously Presented) The photocatalyst composition according to claim 15, wherein the photocatalyst powder has a shape that is spherical, flat, tubular or fibrous.

17. (Cancelled)

18. (Previously Presented) The photocatalyst composition according to claim 15, wherein the photocatalyst is selected from the group consisting of titanium dioxide, zinc oxide, zirconium oxide and tungsten oxide.

19. (Currently Amended) A high-function photocatalyst having its surface partially covered with a polymer having an anionic group, wherein the anionic group attracts pollution materials to the photocatalyst, said polymer leaving uncovered photocatalyst surface, wherein the polymer having an anionic group attracts pollutant materials having a positive charge to the photocatalyst surface, and the polymer is selected from the group consisting of poly(fluorine-substituted sulfonic acid), poly(fluorine containing carboxylic acid), polystyrene sulfonic acid, and polyvinyl sulfonic acid, and wherein said partially covered surface is prepared by applying a polymer solution in an amount of 0.05 to ~~5 ml~~ 0.4 ml with a 5% by weight solution to the photocatalyst surface per gram of the photocatalyst.

20. (Previously Presented) The high-function photocatalyst according to claim 1, wherein the anionic group attracts pollution materials to the photocatalyst.

21. (Previously Presented) The method according to claim 7, wherein the anionic group attracts pollution materials to the photocatalyst.

22. (Previously Presented) The photocatalyst composition according to claim 15, wherein the anionic group attracts pollution materials to the photocatalyst.

23-26. (Cancelled)

27. (New) The high-function photocatalyst according to claim 1 or 2, wherein the photocatalyst is contained in a suspension to decompose the pollutant materials therein.